# Work Order ID 70651

*Friday, June 10, 2011 3:58:18 PM*



**Item ID:** D3391-023 **Accept** **Setup Start**

**Revision ID:** **Stop**

**Item Name:** Mid Tube Assembly

**Start Date:** 6/10/2011 **Start Qty:** 1.00 **Cust Item ID:**

**Required Date:** 6/30/2011 **Req'd Qty:** 1.00 **Customer:**

**Reference:**

**Approvals:** **Process Plan:** MF **Date:** 11-06-10 **Tooling:** _____ **Date:** _____ **Run Start**

**QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| Draw Nbr: D3391 | Revision Nbr: Rev H | | | | | | | | |
| 100 | Skidtubes | 0.00 | | | | | | | |
| Skidtubes | | 0.00 | | | | | | | |

Skidtubes

**Memo**

1-Cut tube to finish length as per Dwg D3391

2-Identify as D3391-023

3-Drill pilot holes using DT8796 (Do not drill "B" holes) and drill only 1 fwd saddle hole on one side only as per Dwg D3391

4-Open saddles and GHW holes to Ø0.375" exept for fwd saddle hole of detail "J"

5-Remove .030" from Fwd indexing Ridge as per Dwg D3391

6-Remove indexing ridge on Fwd & Aft end of skidtube as per Dwg D3391

7-Deburr

8-Drill #30 pilot holes using wearplate Jig DT8217 Identify Ø0.250" holes with paint marker,

9-Open wearplate holes of D3391-023 assembly detail section G-G to Ø0.250" (14 holes) as per Dwg D3391 and 2 holes in section Detail "J", do not open wearplate holes of section "J"

10-Open wearplate holes of D3391-023 assembly detail section H-H to Ø0.297" (20 holes) as per Dwg D3391

DL 11/06/22

**Dart Aerospace Ltd**

| W/O: | | WORK ORDER CHANGES | | | | | |
|---|---|---|---|---|---|---|---|
| **DATE** | **STEP** | **PROCEDURE CHANGE** | **By** | **Date** | **Qty** | **Approval** Chief Eng / Prod Mgr | **Approval** QC Inspector |
| | | | | | | | |
| | | | | | | | |

**Part No:** _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

**Resolution:** _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **DATE** | **STEP** | **Description of NC** Section A | **Corrective Action** Section B | | | **Verification** Section C | **Approval** Chief Eng | **Approval** QC Inspector |
| | | | **Initial** Chief Eng | **Action Description** Chief Eng | **Sign & Date** | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

**NOTE:** Date & initial all entries

# Work Order ID 70651

*Friday, June 10, 2011 3:58:18 PM*

**Item ID:** D3391-023 **Accept** **Setup Start** **Stop**

**Revision ID:**

**Item Name:** Mid Tube Assembly

**Start Date:** 6/10/2011 **Start Qty:** 1.00 **Cust Item ID:**

**Required Date:** 6/30/2011 **Req'd Qty:** 1.00 **Customer:**

**Reference:**

**Run Start** **Stop**

**Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

**QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|

11-Open .375" holes to .438" ***do not open fwd saddle holes*** WR 11/6/23

12-Locate D3391-021 in D3391-023 at 9.00" (see view z-z)

13- Transfer drill one fwd saddle hole only to .188" dia, transfer drill all remaining fwd saddle holes using DT 8149 locating from previusly drill .188" dia hole, using t-pins and clicos to ensure perfect allingment, open up previusly tranfer drilled pilot holes in D3391-023/-021 to 0.438" dia. in D3391-021

14- Transfer drill 2 wearplate holes into D3391-021 using DT8217, locating from two previusly drilled holes, drill remaining wearplate holes into D3391-021.

15- Locating from two fwd wearplate holes drilol remaining 6 wearplte holes in D3391-021 using DT8937

16- Open 2 fwd wearplate holes in D3391-023 to .250" dia.

17- counterbore two aft wearplate holes in D3391-021 as per dwg

18- Open 12 wearplate holes in D3391-021 to 0.297" dia.

19-Deburr and blow out all chips from inside tube

11-6-23

# Work Order ID 70651

*Friday, June 10, 2011 3:58:18 PM*

**Item ID:** D3391-023 **Accept** **Setup Start**

**Revision ID:** **Stop**

**Item Name:** Mid Tube Assembly

**Start Date:** 6/10/2011 **Start Qty:** 1.00 **Cust Item ID:**

**Required Date:** 6/30/2011 **Req'd Qty:** 1.00 **Customer:**

**Reference:**

**Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start**

**QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 110 | QC5- Inspect part completeness to step on W/O | 0.00 | | | | | | | |
| QC | **Memo** | 0.00 11/06/23 | | | | | | | |
| Quality Control | | | | | | | | | |
| 120 | Chemical Conversion Coat per QSI005 4.1 | 0.00 | | | | 1 | | | |
| HandFinish | **Memo** | 0.00 | | | | | | | 11/06/23 |
| Hand Finishing | | | | | | | | | |
| 130 | QC3- Inspect Part Finish | 0.00 | | | | 1 | 0 | | |
| QC | **Memo** | 0.00 | | | | | | | BE 11/06/23 |
| Quality Control | | | | | | | | | |

# Work Order ID 70651

*Friday, June 10, 2011 3:58:18 PM*

**Item ID:** D3391-023 **Accept** **Setup Start**

**Revision ID:** **Stop**

**Item Name:** Mid Tube Assembly

**Start Date:** 6/10/2011 **Start Qty:** 1.00 **Cust Item ID:**

**Required Date:** 6/30/2011 **Req'd Qty:** 1.00 **Customer:**

**Reference:**

**Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start**

**QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 140 | Skidtubes | 0.00 | | | | | | | DL 11/04/24 |
| Skidtubes | **Memo** | 0.00 | | | | | | | |
| Skidtubes | 1-Open float bag holes as per dwg<br>2-C'sink float bag holes as per dwg<br>3- Prepare tube for welding<br>4-Bond web in place as per Dwg D3391 & QSI 015.<br>Adhere for 12 hours)<br>A/R Sikaflex exp: 12/01/15<br>batch#: 11694 | | | | | | | | |
| 150 | QC5- Inspect part completeness to step on W/O | 0.00 | | | | 1 | 0 | | BE 11/06/24 |
| QC | **Memo** | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |
| 160 | Skidtubes | 0.00 | | | | 1 | 0 | | BE 11/06/24 |
| Skidtubes | **Memo** | 0.00 | | | | | | | |
| Skidtubes | 1-Weld crossbolt spacer as per dwg D3391 & QSI 004<br>2-grind weld flush<br>A/R M17456 | | | | | | | | |

# Work Order ID 70651

*Friday, June 10, 2011 3:58:18 PM*

**Item ID:** D3391-023 **Accept** **Setup Start** **Stop**

**Revision ID:**

**Item Name:** Mid Tube Assembly

**Start Date:** 6/10/2011 **Start Qty:** 1.00 **Cust Item ID:**

**Required Date:** 6/30/2011 **Req'd Qty:** 1.00 **Customer:**

**Reference:**

**Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start** **Stop**

**QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 170 | QC10- Inspect visual per QSI004- ground welds | 0.00 | | | | | | | |
| QC | **Memo** | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |
| 180 | QC5- Inspect part completeness to step on W/O | 0.00 | | | | | | | |
| QC | **Memo** | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |
| 185 | Pressure Wash per QSI005 4.3 | 0.00 | | | | | | | |
| HandFinish | **Memo** | 0.00 | | | | | | | |
| Hand Finishing | AND REALODINE AS PER PAR09-043 | | | | | | | | |

# Work Order ID 70651

*Friday, June 10, 2011 3:58:18 PM*



**Item ID:** D3391-023 **Accept** **Setup Start** **Stop**

**Revision ID:**

**Item Name:** Mid Tube Assembly

**Start Date:** 6/10/2011 **Start Qty:** 1.00 **Cust Item ID:**

**Required Date:** 6/30/2011 **Req'd Qty:** 1.00 **Customer:**

**Reference:**

**Run Start** **Stop**

**Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

**QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 190 | White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum | 0.00 | | | | | | | |
| Powdercoat | **Memo** START TIME: 11:20 OVEN TEMPERATURE: 320 01= FINISH TIME: 11:55 | 0.00 | | | | 1X | ϕ | m-L | 11/06/27 |
| Powder Coating | M117745 | | | | | | | | |
| 200 | QC3- Inspect Part Finish | 0.00 | | | | | | | |
| QC | **Memo** | 0.00 | | | | 1 | ϕ | YL | 11/06/27 |
| Quality Control | | | | | | | | | |

# Work Order ID 70651

*Friday, June 10, 2011 3:58:18 PM*

**Item ID:** D3391-023 **Accept** **Setup Start**

**Revision ID:** **Stop**

**Item Name:** Mid Tube Assembly

**Start Date:** 6/10/2011 **Start Qty:** 1.00 **Cust Item ID:**

**Required Date:** 6/30/2011 **Req'd Qty:** 1.00 **Customer:**

**Reference:**

**Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start**

**QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 210 | | 0.00 | | | | | | | |
| Skidtubes | Skidtubes | | | | | 1 | ϕ | | u 06/27 |
| Skidtubes | **Memo** | 0.00 | | | | | | | |
| Skidtubes | 1- insert D3391-021 into D3391-23<br>2- insert T-pins into first and third fwd saddle holes<br>3- ON FIRST SIDE ONLY drill out 2nd and forth fwd saddles holes to 0.500" as per DSI 9364<br>4- remove T-pins and locate DT9415 from first and third crossbolt hole using T-pins and clekos<br>5- ON 2ND SIDE ONLY ream out 2nd and forth saddle hole to 0.499". Remove DT9415<br>6- deburr, re-alodine and blow out chips<br>7- press fit D3591-1 spacers using DT9416 starting from 0.500" side | | | | | | | | |
| 220 | QC5- Inspect part completeness to step on W/O | 0.00 | | | | | | | |
| QC | **Memo** | 0.00 | | | | | | | S u 06/28 |
| Quality Control | | | | | | | | | |

# Work Order ID 70651

*Friday, June 10, 2011 3:58:18 PM*



**Item ID:** D3391-023 **Accept** **Setup Start** **Stop**

**Revision ID:**

**Item Name:** Mid Tube Assembly

**Start Date:** 6/10/2011 **Start Qty:** 1.00 **Cust Item ID:**

**Required Date:** 6/30/2011 **Req'd Qty:** 1.00 **Customer:**

**Reference:**

**Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start** **Stop**

**QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 230 | HandFinishing | 0.00 | | | | 1 | 0 | | u/06/27 |
| HandFinish | **Memo** | 0.00 | | | | | | | |
| Hand Finishing | ✓ Install Inserts as per Dwg | | | | | | | | |
| 240 | QC5- Inspect part completeness to step on W/O | 0.00 | | | | ~~0~~ | | | |
| QC | **Memo** | 0.00 | S u/06/27 | | | | | | |
| Quality Control | | | | | | | | | |
| 250 | Identify as per dwg & Stock Location: w/o | 0.00 | D412-742-043/B70642 | | | 1 | 0 | | u/06/28 |
| Packaging | **Memo** | 0.00 | | | | | | | |
| Packaging | | | | | | | | | |

# Work Order ID 70651

*Friday, June 10, 2011 3:58:18 PM*



**Item ID:** D3391-023 **Accept** **Setup Start**

**Revision ID:** **Stop**

**Item Name:** Mid Tube Assembly

**Start Date:** 6/10/2011 **Start Qty:** 1.00 **Cust Item ID:**

**Required Date:** 6/30/2011 **Req'd Qty:** 1.00 **Customer:**

**Reference:**

**Run Start**

**Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Stop**

**QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 260 | QC21- Final Inspection - Work Order Release | 0.00 | | | | | | | |
| QC | **Memo** | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |

11/6/28 MF 11-06-28

# Picklist Print

*Friday, June 10, 2011 3:58:15 PM*



**Work Order ID:** 70651

**Parent Item:** D3391-023

**Parent Item Name:** Mid Tube Assembly

**Start Date:** 6/10/2011 **Required Date:** 6/30/2011

**Start Qty:** 1.00 **Required Qty:** 1.00

**Comments:**

IPP A□05.10.20□New Issue□ KJ/EC□
IPP B□06.02.10□ECN773 dwg rev.D EC□
IPP C 07.03.20 rev F dwg EC
IPP D 07.03.28 re-format EC
IPP E 07.10.31 ecn 1053P EC
IPP Rev:F ECN 1056 07-11-13 DD verified by: EC
IPP Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC
IPP Rev:H 08-09-10 revH as per dwg DD verified by:EC
IPP Rev: I 08-11-13 Removed steps per w/o, QC KJ verified by: ec IPP
Rev:J add in seq 140 expire date &b# sikaflex DD 10.02.17 verified by:EC

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D2500-1-100 Skidtube Extrusion | | Manufactured | No | | | 100 | Each | 87.0000 | 1 | 1 | | | |
| | | | | **Location** | | **Loc Qty** | | **Loc Code** | | | | | |
| | | | | HALL | | 87 | | | | | | | |
| | | | | 37065 | | 12 | | | | 1 | | | |
| | | | | 50251 | | 75 | | | | | | | |
| D3391-021 Fwd Tube Assembly | | Manufactured | No | | | 100 | Each | 0.0000 | 1 | 1 | | | |
| D3389-1 Web | | Manufactured | No | | | 140 | Each | 4.0000 | 1 | 1 | | | |
| | | | | **Location** | | **Loc Qty** | | **Loc Code** | | | | | |
| | | | | LG | | 4 | | | | | | | |
| | | | | 68999 | | 1 | | | | | | | |
| | | | | 69228 | | 3 | | | | 1 | | | |

**Dart Aerospace Ltd**

| W/O: | | WORK ORDER CHANGES | | | | | |
|---|---|---|---|---|---|---|---|
| **DATE** | **STEP** | **PROCEDURE CHANGE** | **By** | **Date** | **Qty** | **Approval** Chief Eng / Prod Mgr | **Approval** QC Inspector |
| | | | | | | | |
| | | | | | | | |

**Part No:** _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

**Resolution:** _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **DATE** | **STEP** | **Description of NC** Section A | **Corrective Action** Section B | | | **Verification** Section C | **Approval** Chief Eng | **Approval** QC Inspector |
| | | | **Initial** Chief Eng | **Action Description** Chief Eng | **Sign & Date** | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

**NOTE:** Date & initial all entries

# Picklist Print

*Friday, June 10, 2011 3:58:15 PM*

**Work Order ID:** 70651

**Parent Item:** D3391-023

**Parent Item Name:** Mid Tube Assembly

**Start Date:** 6/10/2011 **Required Date:** 6/30/2011

**Start Qty:** 1.00 **Required Qty:** 1.00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| D3681-1 | Manufactured | No | | 160 | Each | 44.0000 | 5 | 5 |

Spacer

BE 11/06/24

| Location | Loc Qty | Loc Code | |
|---|---|---|---|
| LG | 44 | | |
| 68958 | 2 | | |
| 69516 | 10 | | |
| 69893 | 32 | | 5 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| D3591-1 | Manufactured | No | | 210 | Each | 35.0000 | 2 | 2 |

Bushing

11/06/27

| Location | Loc Qty | Loc Code | |
|---|---|---|---|
| ST068 | 35 | | |
| 57350 | 2 | | |
| ~~66147~~ | 33 | | x2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ALS4-1032-130 | Purchased | No | | 230 | Each | 1,634.000 | 20 | 20 |

Insert

11/06/27

| Location | Loc Qty | Loc Code | |
|---|---|---|---|
| ST281 | 8 | | |
| 117331 | 8 | | |
| ST282 | 1626 | | |
| 117717 | 1626 | | x 20 |

**Dart Aerospace Ltd**

| W/O: | | WORK ORDER CHANGES | | | | | |
|---|---|---|---|---|---|---|---|
| **DATE** | **STEP** | **PROCEDURE CHANGE** | **By** | **Date** | **Qty** | **Approval** Chief Eng / Prod Mgr | **Approval** QC Inspector |
| | | | | | | | |
| | | | | | | | |

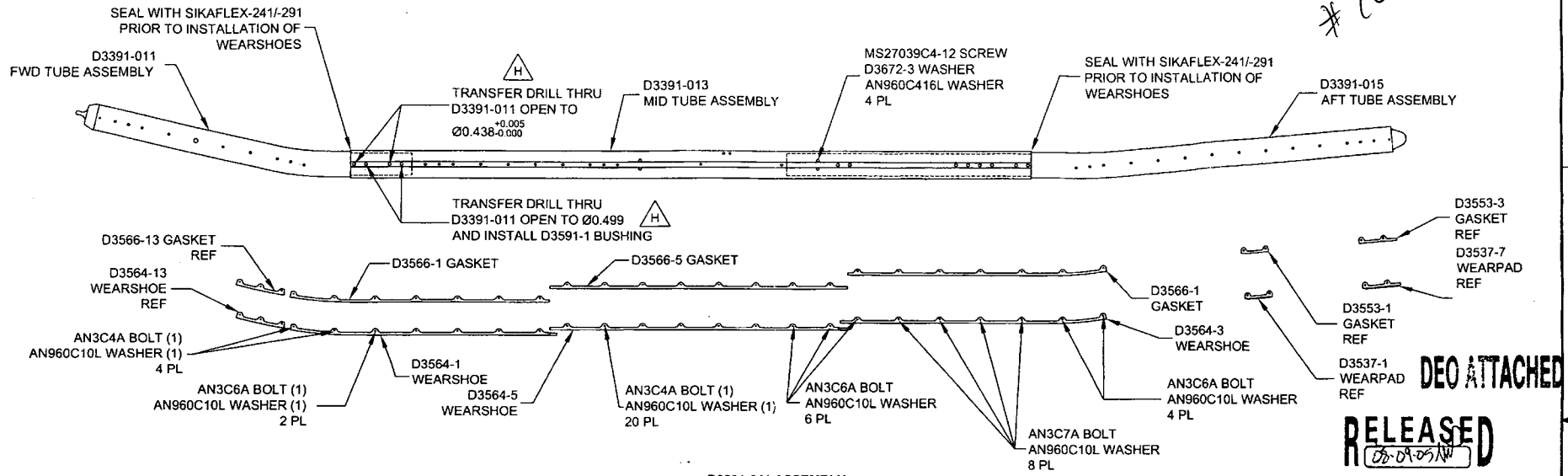
**Part No:** _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

**Resolution:** _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **DATE** | **STEP** | **Description of NC** Section A | **Corrective Action** Section B | | | **Verification** Section C | **Approval** Chief Eng | **Approval** QC Inspector |
| | | | **Initial** Chief Eng | **Action Description** Chief Eng | **Sign & Date** | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

**NOTE:** Date & initial all entries

#70651




DEO ATTACHED

RELEASED 08.09.05 NW

**D3391-041 ASSEMBLY**

**D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST**

| QTY -041 | PART NUMBER | DESCRIPTION |
|---|---|---|
| X | D3391-041 | FLOAT SKIDTUBE ASSEMBLY |
| | | |
| 1 | D3391-011 | FWD TUBE ASSEMBLY |
| 1 | D3391-013 | MID TUBE ASSEMBLY |
| 1 | D3391-015 | AFT TUBE ASSEMBLY |
| | | |
| 1 | D3564-1 | WEARSHOE |
| 1 | D3564-3 | WEARSHOE |
| 1 | D3564-5 | WEARSHOE |
| 2 | D3566-1 | GASKET |
| 1 | D3566-5 | GASKET |
| 2 | D3591-1 | BUSHING |
| 4 | D3672-3 | WASHER |
| | | |
| 24 | AN3C4A | BOLT |
| 12 | AN3C6A | BOLT |
| 8 | AN3C7A | BOLT |
| 44 | AN960C10L | WASHER |
| 4 | MS27039C4-12 | SCREW |
| 4 | AN960C416L | WASHER |

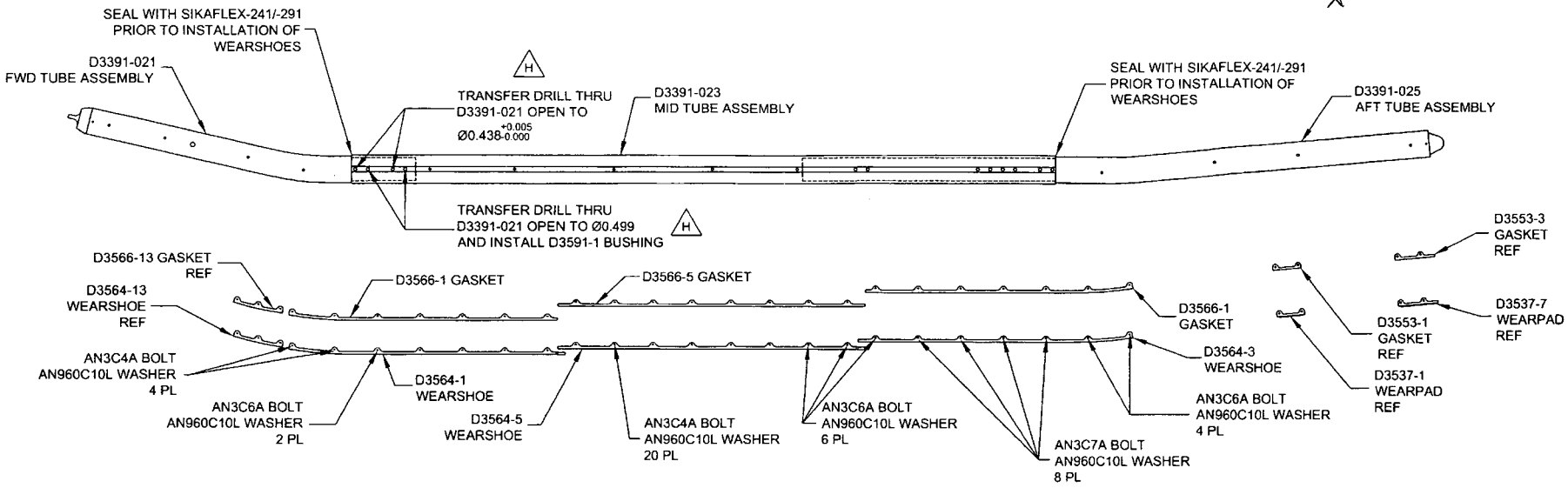
**GENERAL NOTES**

1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| H | DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074) | AJS | 08.08.20 |
| G | REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY | DC | 07.07.31 |
| F | ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021 | PH | 07.01.18 |
| E | CHANGE TOLERANCE, EASE MANUFACTURE | PH | 06.04.25 |
| D | UPDATE TOLERANCE, CHANGE HOLE SIZE | PH | 06.01.23 |
| C | LENGTHEN AFT EXTENSION | PH | 05.09.27 |
| B | DRAWING UPDATES | PH | 05.06.10 |
| A | NEW ISSUE | PH | 05.02.07 |

| | | |
|---|---|---|
| DESIGN | PH | **DART AEROSPACE USA, INC** PORT HADLOCK, WA |
| DRAWN | AJS | |
| CHECKED | | DRAWING NO. REV. H |
| MFG. APPR. | | D3391 SHEET 1 OF 8 |
| APPROVED | | TITLE SCALE |
| DE APPR. | | 412 FLOAT SKIDTUBE NTS |
| DATE | 08.08.20 | |

#70651




**D3391-043 ASSEMBLY**

**D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST**

| QTY -043 | PART NUMBER | DESCRIPTION |
|---|---|---|
| X | D3391-043 | FLOAT SKIDTUBE ASSEMBLY |
| | | |
| 1 | D3391-021 | FWD TUBE ASSEMBLY |
| 1 | D3391-023 | MID TUBE ASSEMBLY |
| 1 | D3391-025 | AFT TUBE ASSEMBLY |
| | | |
| 1 | D3564-1 | WEARSHOE |
| 1 | D3564-3 | WEARSHOE |
| 1 | D3564-5 | WEARSHOE |
| 2 | D3566-1 | GASKET |
| 1 | D3566-5 | GASKET |
| H 2 | D3591-1 | BUSHING |
| | | |
| 24 | AN3C4A | BOLT |
| 12 | AN3C6A | BOLT |
| 8 | AN3C7A | BOLT |
| 44 | AN960C10L | WASHER |

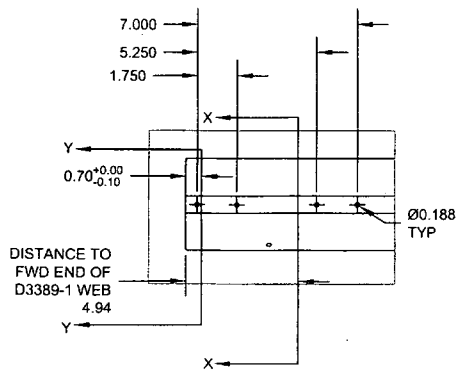
**GENERAL NOTES**

1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

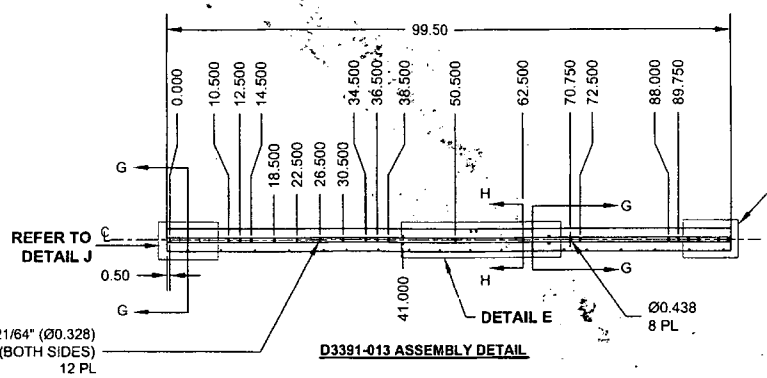
DEO ATTACHED

RELEASED 08.09.25 NB

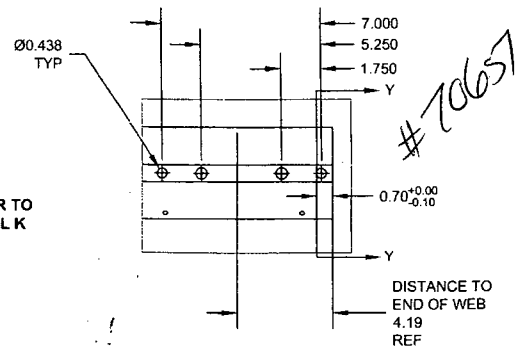
| | | | |
|---|---|---|---|
| DESIGN | PH | **DART AEROSPACE USA, INC** PORT HADLOCK, WA | |
| DRAWN | AJS | | |
| CHECKED | | DRAWING NO. | REV. H |
| MFG. APPR. | | D3391 | SHEET 2 OF 8 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | 412 FLOAT SKIDTUBE | NTS |
| DATE | 08.08.20 | | |




**DETAIL J**
SCALE 4X



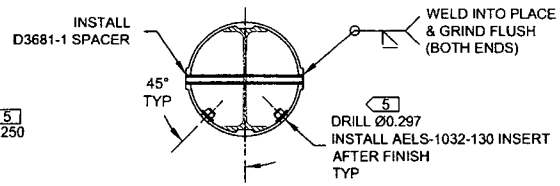

**D3391-013 ASSEMBLY DETAIL**



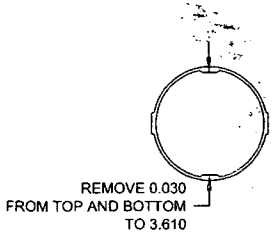

**DETAIL K**
SCALE 4X

#70657

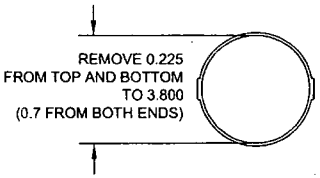

**SECTION G-G**
SCALE 5X




**SECTION H-H** 12 PL
SCALE 5X



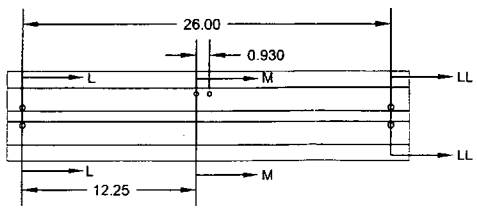

**SECTION X-X**
SCALE 5X



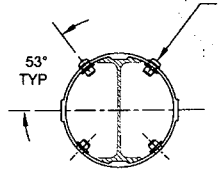

**SECTION Y-Y**
SCALE 5X

**D3391-013 MID TUBE ASSEMBLY PARTS LIST**

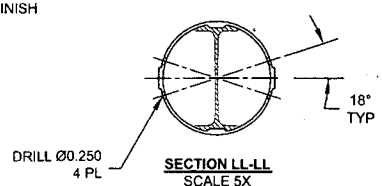
| QTY -013 | PART NUMBER | DESCRIPTION |
|---|---|---|
| X | D3391-013 | MID TUBE ASSEMBLY |
| | | |
| 1 | D2500-1-100 | EXTRUSION |
| 1 | D3389-1 | WEB |
| 4 | D3672-1 | WASHER |
| 4 | D3672-3 | WASHER |
| 12 | D3681-1 | SPACER |
| | | |
| 24 | AELS-1032-130 | INSERT |
| 4 | ALS4-428-165 | INSERT |
| 4 | AN960C10L | WASHER |
| 4 | AN960C416L | WASHER |
| 4 | MS27039C1-09 | SCREW |
| 4 | MS27039C4-08 | SCREW |



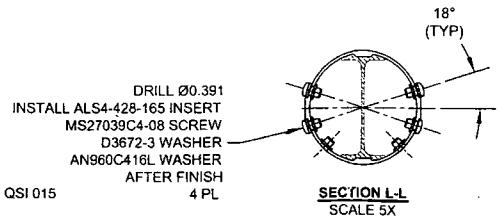

**DETAIL E**
SCALE NONE




**SECTION M-M**
SCALE 5X




**SECTION LL-LL**
SCALE 5X



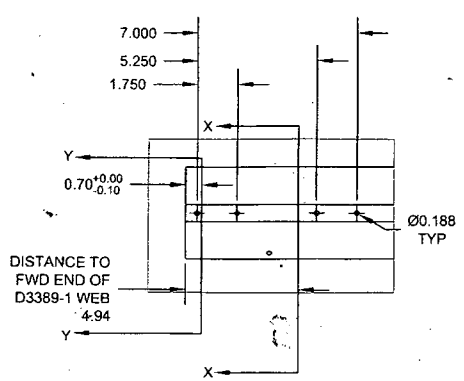

**SECTION L-L**
SCALE 5X

**D3391-013 MID TUBE ASSEMBLY**
1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
3) WELDING: PER DART QSI 004

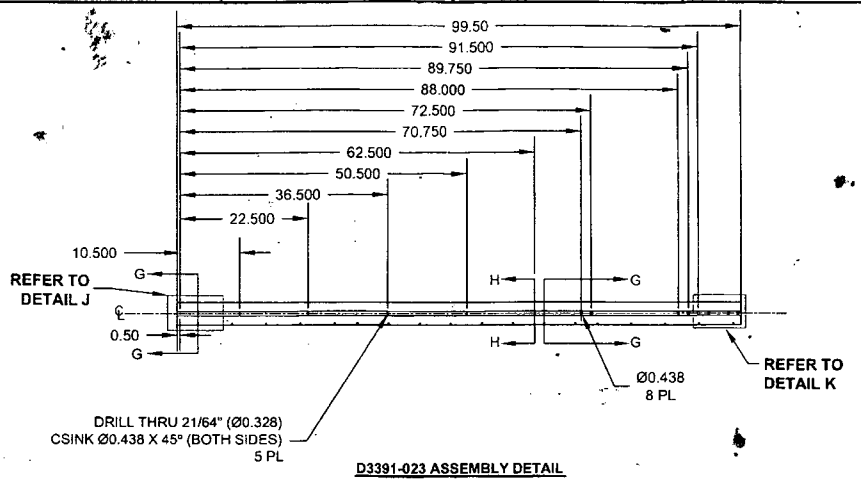
DEO ATTACHED

RELEASED
08.09.20 MW

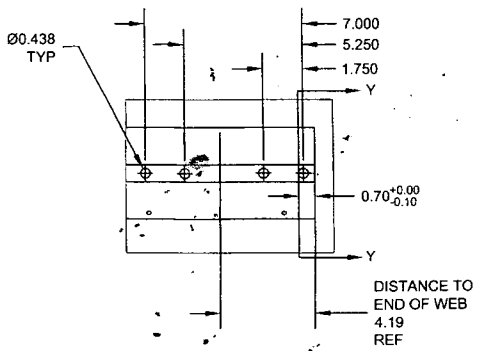
| | | |
|---|---|---|
| DESIGN | PH | DART AEROSPACE USA, INC |
| DRAWN | AJS | PORT HADLOCK, WA |
| CHECKED | | DRAWING NO. REV. H |
| MFG. APPR. | | D3391 SHEET 5 OF 8 |
| APPROVED | | TITLE SCALE |
| DE APPR. | | 412 FLOAT SKIDTUBE NTS |
| DATE | 08.08.20 | |



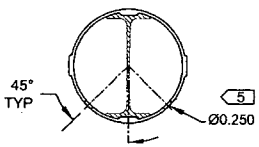

DETAIL J
SCALE 4X



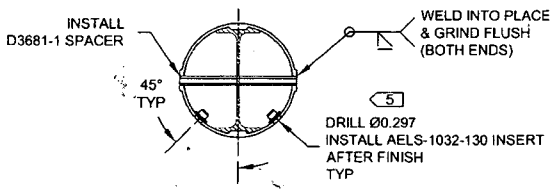

D3391-023 ASSEMBLY DETAIL



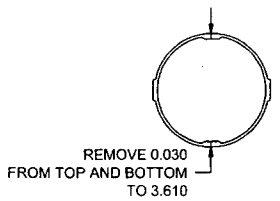

DETAIL K
SCALE 4X



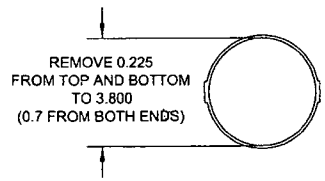

SECTION G-G
SCALE 5X




SECTION H-H
SCALE 5X
5 PL




SECTION X-X
SCALE 5X




SECTION Y-Y
SCALE 5X

**D3391-023 MID TUBE ASSEMBLY PARTS LIST**

| QTY - 023 | PART NUMBER | DESCRIPTION |
|---|---|---|
| X | D3391-023 | MID TUBE ASSEMBLY |
| | | |
| 1 | D2500-1-100 | EXTRUSION |
| 1 | D3389-1 | WEB |
| 5 | D3681-1 | SPACER |
| | | |
| 20 | AELS-1032-130 | INSERT |

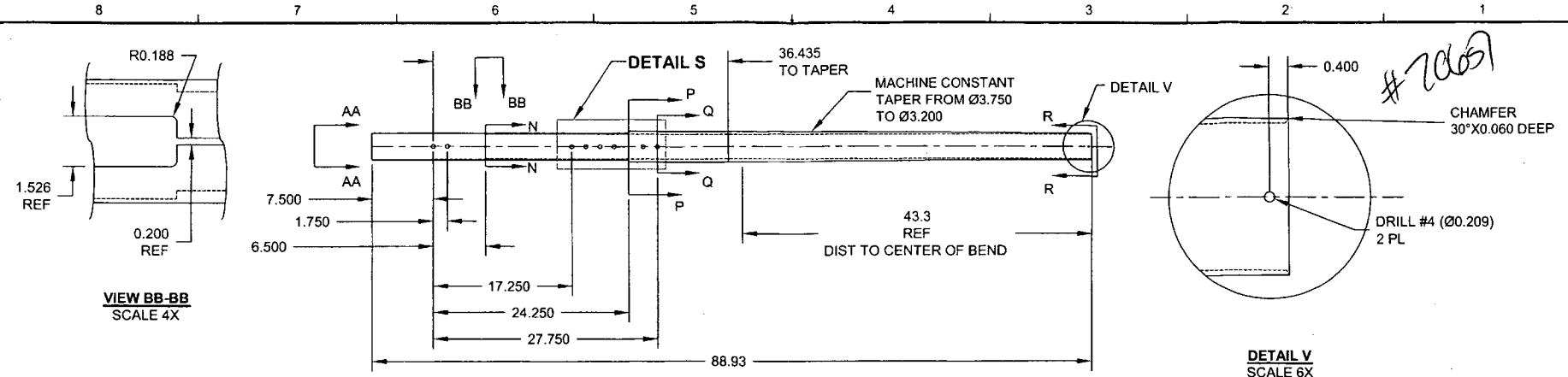
**D3391-023 MID TUBE ASSEMBLY**

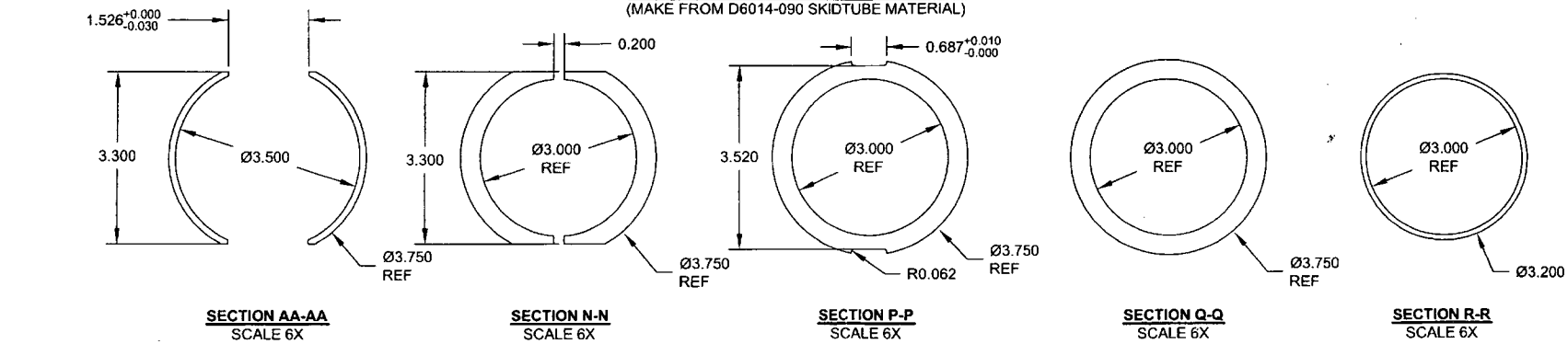
1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
3) WELDING: PER DART QSI 004

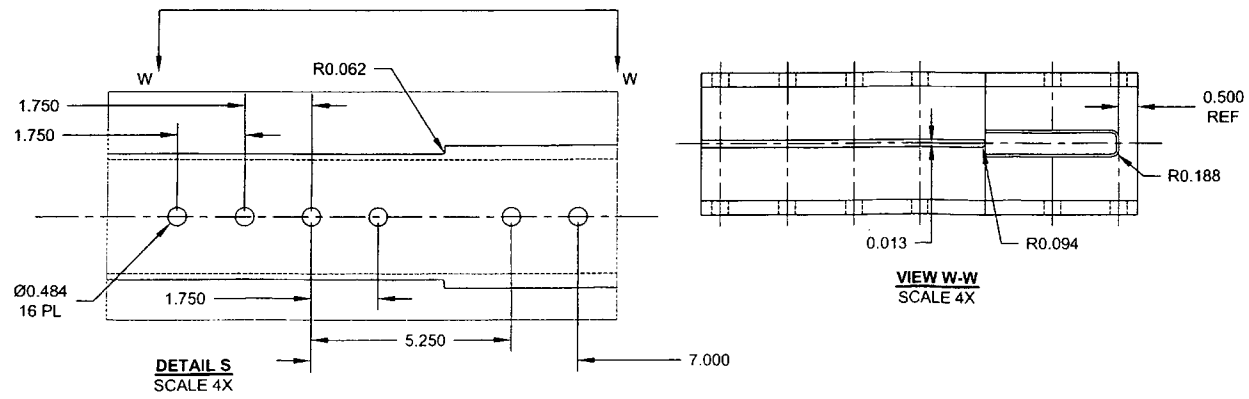
DEO ATTACHED

RELEASED
08-29-20 MV

| | | |
|---|---|---|
| DESIGN | PH | DART AEROSPACE USA, INC |
| DRAWN | AJS | PORT HADLOCK, WA |
| CHECKED | | DRAWING NO. REV. H |
| MFG. APPR. | | D3391 SHEET 6 OF 8 |
| APPROVED | | TITLE SCALE |
| DE APPR. | | 412 FLOAT SKIDTUBE NTS |
| DATE | 08.08.20 | |



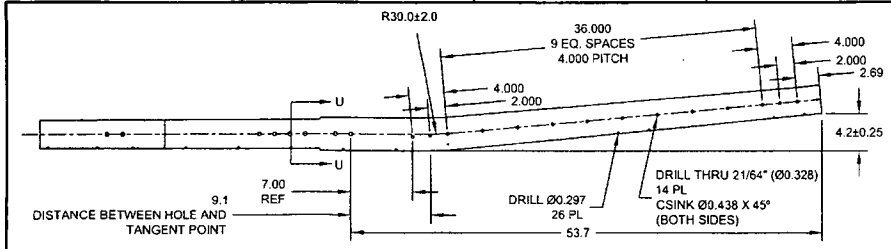



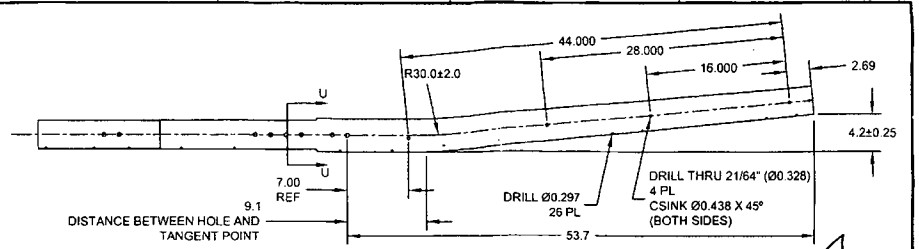

DEO ATTACHED

RELEASED 08.09.05

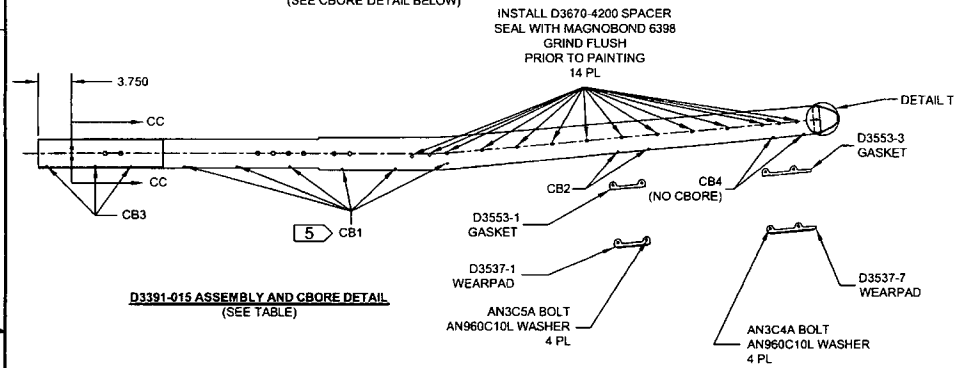
| | | |
|---|---|---|
| DESIGN | PH | DART AEROSPACE USA, INC |
| DRAWN | AJS | PORT HADLOCK, WA |
| CHECKED | | DRAWING NO. D3391 REV. H |
| MFG. APPR. | | SHEET 7 OF 8 |
| APPROVED | | TITLE 412 FLOAT SKIDTUBE SCALE NTS |
| DE APPR. | | |
| DATE | 08.08.20 | |



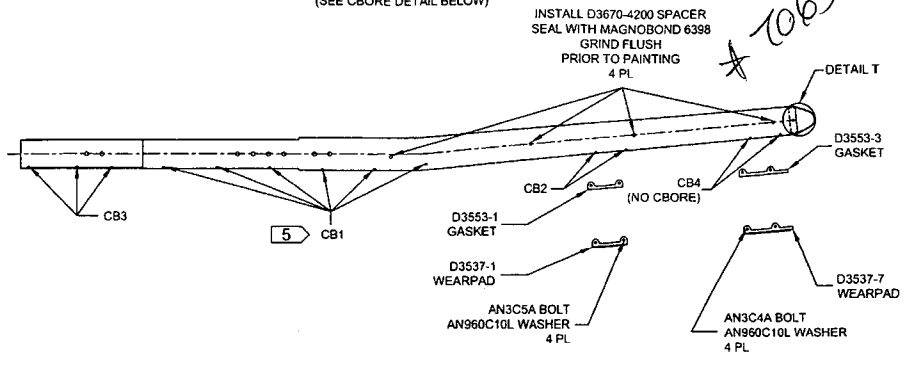

**D3391-015 BENDING AND DRILLING DETAIL**
(SEE CBORE DETAIL BELOW)




**D3391-025 BENDING AND DRILLING DETAIL**
(SEE CBORE DETAIL BELOW)



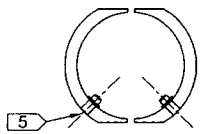

**D3391-015 ASSEMBLY AND CBORE DETAIL**
(SEE TABLE)



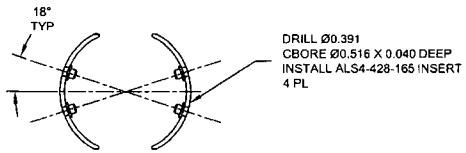

**D3391-025 ASSEMBLY AND CBORE DETAIL**
(SEE TABLE)

**D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST**

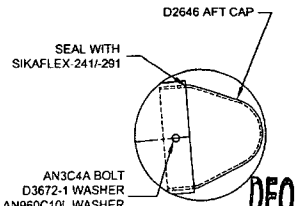
| QTY - 015 | QTY - 025 | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| X | | D3391-015 | AFT TUBE ASSEMBLY |
| | X | D3391-025 | AFT TUBE ASSEMBLY |
| | | | |
| 1 | 1 | D6014-090 | AFT TUBE |
| 1 | 1 | D2646 | AFT CAP |
| 1 | 1 | D3537-1 | WEARPAD |
| 1 | 1 | D3537-7 | WEARPAD |
| 1 | 1 | D3553-1 | GASKET |
| 1 | 1 | D3553-3 | GASKET |
| 14 | 4 | D3670-4200 | SPACER |
| 2 | 2 | D3672-1 | WASHER |
| | | | |
| 14 | 14 | AELS-1032-130 | INSERT |
| 12 | 12 | AELS-1032-225 | INSERT |
| 4 | | ALS4-428-165 | INSERT |
| 6 | 6 | AN3C4A | BOLT |
| 4 | 4 | AN3C5A | BOLT |
| 10 | 10 | AN960C10L | WASHER |




**SECTION U-U**
SCALE 3X




**SECTION CC-CC**
SCALE 3X




**DETAIL T**
SCALE 4X

DEO ATTACHED

RELEASED
08.09.05 MP

C'BORE HOLES MARKED CB1-CB4 AS FOLLOWS AND
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

| HOLES MARKED | QTY D3391-015 | QTY D3391-025 | CBORE | P/N |
|---|---|---|---|---|
| CB1 | 12 | 12 | Ø0.430 X 0.170 | AELS-1032-225 |
| CB2 | 4 | 4 | Ø0.430 X 0.170 | AELS-1032-130 |
| CB3 | 6 | 6 | Ø0.430 X 0.040 | AELS-1032-130 |
| CB4 | 4 | 4 | NONE | AELS-1032-130 |

| | | |
|---|---|---|
| DESIGN | PH | **DART AEROSPACE USA, INC** PORT HADLOCK, WA |
| DRAWN | AJS | |
| CHECKED | | DRAWING NO. D3391 REV. H |
| MFG. APPR. | | SHEET 8 OF 8 |
| APPROVED | | TITLE 412 FLOAT SKIDTUBE SCALE NTS |
| DE APPR. | | |
| DATE | 08.08.20 | |

| DRAWING NO. | TITLE | REV. H | DART AEROSPACE USA, INC | D.E.O. NO. | SHEET NO. | SCALE |
|---|---|---|---|---|---|---|
| D3391 | 412 FLOAT SKIDTUBE | | ENGINEERING ORDER | D3391-H-1 | SHEET 1 OF 1 | NTS |

| DRAWN | CHECKED | MFG. APPR. | APPROVED | DE APPR. |
|---|---|---|---|---|
| DATE 09.09.23 | DATE 04.04.24 | DATE 09/09/25 | DATE 09/09/30 | DATE 09/09/30 |

**PURPOSE:**
LPS-3 IS NO LONGER USED DURING ASSEMBLY OF D3391-041/-043 SKIDTUBES.

RELEASED
2010 -02- 02

**CHANGE:**
AMEND NOTE 2 OF D3391-041/-043 SKIDTUBE ASSEMBLIES (ZN A6-1, A6-2) AS FOLLOWS:

2) ~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS.~~ COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.

MP
7065

NO. 256

# AWS D17.1.2001
## QUALIFICATION TEST RECORD

**Name:** Barclay Elliot
**Job number:** D70180
**Part number:** D339[ - 023
**Description:** Mid Tube
**Welding Process:** Tig[✓] Mig[ ]
**Base materiel:** Aluminum
**Current:** AC[✓] DC[ ]

## TEST REQUIREMENTS AND RESULTS

| | |
|---|---|
| **Visual:** | pass[✓] fail[ ] |
| **Penetration:** | pass[✓] fail[ ] |

**UNACCEPTABLE**

| | |
|---|---|
| **Cracks:** | pass[✓] fail[ ] |
| **Undercut:** | pass[✓] fail[ ] |
| **Pin holes:** | pass[✓] fail[ ] |
| **Overlap (cold lap)** | pass[✓] fail[ ] |
| **Porosity (surface):** | pass[✓] fail[ ] |
| **Coloration:** | pass[✓] fail[ ] |

**Qualifier** Nat Lewis **Date of Test Coupon** 11-06-20

**Welder** Barclay Elliott **Date of Test Coupon** 11-06-20

The above named individual is qualified in accordance with AWS D17.1.2001 to weld

**Dart Aerospace Ltd**

| W/O: | | WORK ORDER CHANGES | | | | | |
|---|---|---|---|---|---|---|---|
| **DATE** | **STEP** | **PROCEDURE CHANGE** | **By** | **Date** | **Qty** | **Approval** Chief Eng / Prod Mgr | **Approval** QC Inspector |
| | | | | | | | |
| | | | | | | | |

**Part No:** _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

**Resolution:** _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **DATE** | **STEP** | **Description of NC** Section A | **Corrective Action** Section B | | | **Verification** Section C | **Approval** Chief Eng | **Approval** QC Inspector |
| | | | **Initial** Chief Eng | **Action Description** Chief Eng | **Sign & Date** | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

**NOTE:** Date & initial all entries